

Message Text

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C O N F I D E N T I A L STATE 240033

E.O. 11652:ADS-DECLASSIFY UPON COMPLETION OF NEGOTIATIONS

TAGS: OCLR, TGEN, BR, PE, NS, UK

SUBJECT: REQUEST FOR FOREIGN OPERATING RIGHTS -
PROJECT 4643 (FORMERLY PROJECT 7663)

1. THE AIR FORCE GEOPHYSICS LABORATORY (AFGL) DESIRES TO
CONDUCT FOLLOW-ON IONOSPHERIC MEASUREMENTS OF RADIO
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PROPAGATION IN THE EQUATORIAL SCINTILLATION REGIONS OVER
SOUTH AMERICA AND THE SOUTH ATLANTIC OCEAN. REQUEST
EMBASSIES SEEK APPROVAL OF RESPECTIVE HOST GOVERNMENTS
FOR THE OPERATIONS DETAILED BELOW.

2. THE OBJECTIVE OF THE PROJECT WOULD BE TO ACHIEVE A
BETTER UNDERSTANDING OF HOW THE NATURAL IONIZED ENVIRONMENT

IMPACTS ON THE PERFORMANCE OF AIR FORCE COMMUNICATIONS AND NAVIGATION SYSTEMS THAT INVOLVE THE PROPAGATION OF RADIO WAVES. THE DESIRED RESULT OF THIS BETTER UNDERSTANDING WOULD BE AN ENHANCEMENT OF COMMUNICATION AND NAVIGATION CAPABILITIES ON A WORLD-WIDE BASIS.

3. THE SPECIFIC GOALS OF THE PLANNED OPERATION WOULD BE TO GAIN A BETTER UNDERSTANDING OF THE IONOSPHERIC MECHANISM LEADING TO AMPLITUDE AND PHASE FLUCTUATIONS (SCINTILLATIONS) ON SATELLITE-TO-AIRCRAFT AND SATELLITE-TO-GROUND VERY HIGH FREQUENCY (VHF)/ULTRA HIGH FREQUENCY (UHF) COMMUNICATIONS

LINKS, TO MAP THE EXTENT OF THE SCINTILLATION REGION, TO DETERMINE THE DURATION OF INDIVIDUAL SCINTILLATION EVENTS AND TO INVESTIGATE THE LONGITUDINAL VARIABILITY OF THE OBSERVED PHENOMENA.

4. THE OPERATION WOULD BE CONDUCTED IN FEBRUARY AND MARCH 1978 AND WOULD INVOLVE STAGING OF AN NKC-135 (BOEING 707 TYPE) AIRCRAFT AT LIMA, PERU; RECIFE, BRAZIL; ASCENSION ISLAND, UK, WITH A STOPOVER AT ZANDERIJ, SURINAM. EQUIPMENT TESTING AND SCIENTIFIC OBSERVATIONS WOULD BE CONDUCTED AT LIMA, RECIFE AND ASCENSION, AS WELL AS DURING FLIGHTS OVER PERU, BRAZIL AND ASCENSION ISLAND. THE SPECIFIC TIMEFRAME OF THIS OPERATION WAS CHOSEN TO FALL IN A PERIOD DURING WHICH THERE IS A HIGH PROBABILITY OF

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OCCURRENCE OF SCINTILLATION, AS WELL AS THE OCCURRENCE OF THE NEW MOON WHICH WOULD PERMIT OPTICAL MEASUREMENTS. THE SPECIFIC STAGING LOCATIONS WERE CHOSEN SINCE THEY ARE FAVORABLY LOCATED ALONG THE CENTER LINE OF THE EQUATORIAL SCINTILLATION REGIONS AND ARE IDEAL FOR INVESTIGATIONS OF LATITUDINAL STRUCTURE AND LONGITUDINAL VARIABILITY OF THE SCINTILLATION PHENOMENA.

5. GROUND BASED SCINTILLATION OBSERVATIONS AT ALL THREE LOCATIONS AND OPERATION OF THE PERUVIAN 50MHZ RADAR FACILITY AT JICAMARCA WOULD BE COORDINATED WITH THIS OPERATION TO OBTAIN THE MAXIMUM AMOUNT OF DATA. THESE EXPERIMENTS WOULD RESULT IN A UNIQUE SET OF OBSERVATIONS NECESSARY FOR THE UNDERSTANDING OF THE DEVELOPMENT AND GEOPHYSICAL CONTROL OF SCINTILLATIONS. OPERATIONS PREVIOUSLY CONDUCTED IN OCTOBER 1976 AND MARCH 1977 WERE VERY PRODUCTIVE AND HAVE RESULTED IN MANY NEW INSIGHTS INTO THE STRUCTURE AND LIFETIMES OF THE IRREGULARITIES AND THEIR LONGITUDINAL VARIABILITY. IN ADDITION, THE SATELLITE TRANSMISSION RECEIVING CAPABILITY OF THE AIRCRAFT HAS BEEN IMPROVED BY THE ADDITION OF A NEW 137MHZ ANTENNA. THIS WOULD PERMIT THE USE OF ADDITIONAL SATELLITES FOR

IMPROVED COVERAGE AND WOULD MAKE IT POSSIBLE TO
INVESTIGATE THE FREQUENCY DEPENDENCE OF SCINTILLATIONS.

6. THE AIRCRAFT WOULD BE AN NKC-135 AIRCRAFT BEARING AIR
FORCE SERIAL NUMBER 53131, WHICH IS INSTRUMENTED FOR
IONOSPHERIC RESEARCH. EQUIPMENT ON BOARD THE AIRCRAFT
WOULD CONSIST OF GRANGER AND DIGITAL IONOSPHERIC SOUNDERS,
PHOTOMETERS, ALLSKY PHOTOMETERS, SPECTROMETERS AND VHF/
UHF SATELLITE RECEIVERS. ALL THIS EQUIPMENT IS INSTALLED
ABROAD THE AIRCRAFT AND IS OWNED BY AFGL. THE AIRCRAFT
IS OWNED AND OPERATED BY THE 4950TH TEST WING AT WRIGHT-
PATTERSON AFB, OHIO. THE AIRCREW WOULD CONSIST OF FOUR
USAF OFFICERS AND FOUR USAF ENLISTED PERSONNEL. A

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SCIENTIFIC TEAM CONSISTING OF ONE USAF OFFICER, FIVE DOD
CIVILIANS, ONE NCO, TWO AIRMEN, ONE NATIONAL OCEANOGRAPHIC
AND ATMOSPHERIC ADMINISTRATION SCIENTIST AND ONE SCIENTIST
FROM THE UNIVERSITY OF TEXAS WOULD ALSO ACCOMPANY THE
AIRCRAFT. ALL THE ABOVE PERSONNEL WOULD BE US CITIZENS
AND WOULD POSSESS ALL REQUIRED DOCUMENTS AS OUTLINED IN THE
USAF FOREIGN CLEARANCE GUIDE. RADIO FREQUENCY CLEARANCES
WOULD BE OBTAINED IN ACCORDANCE WITH AFM 100-31.

7. THE FOLLOWING SCHEDULE WOULD BE ADHERED TO:

ARRIVE STATION DEPART PURPOSE

LIMA 27 FEB

27 FEB	LIMA	1 MAR	LOCAL FLIGHT
1 MAR	LIMA	2 MAR	LOCAL FLIGHT
2 MAR	LIMA	3 MAR	LOCAL FLIGHT
3 MAR	LIMA	4 MAR	LOCAL FLIGHT (OPTICAL)
4 MAR	LIMA	5 MAR	LOCAL FLIGHT (OPTICAL)
5 MAR	LIMA	6 MAR	LOCAL FLIGHT (OPTICAL)
6 MAR	LIMA	7 MAR	POSITIONING
7 MAR	RECIFE	8 MAR	LOCAL FLIGHT
8 MAR	RECIFE	10 MAR	LOCAL FLIGHT
10 MAR	RECIFE	11 MAR	POSITIONING
11 MAR	ASCENSION	13 MAR	POSITIONING
13 MAR	ZANDERIJ	15 MAR	POSITIONING

NOTE: THIS IS A TENTATIVE SCHEDULE WHICH COULD BE
AFFECTED BY MECHANICAL DIFFICULTIES AND ADVERSE WEATHER
CONDITIONS.

8. THIS OPERATION WOULD BE A COOPERATIVE EFFORT OF
SCIENTISTS FROM AFGL, THE INSTITUTE OF GEOPHYSICS OF PERU
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(SUPPORTED BY THE UNIVERSITY OF TEXAS) AND THE FEDERAL
UNIVERSITY OF THE NORTHERN RIO GRANDE, BRAZIL. THE
PROJECT IS UNCLASSIFIED AND ALL DATA WOULD BE AVAILABLE
TO HOST NATIONS ON REQUEST.
CHRISTOPHER

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NNN

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